



Submitted to:

The Virginia Department of
Environmental Quality

Blue Ridge Regional DEQ Office
MS4 Stormwater Permitting Div. 3019
901 Russell Drive
Salem, VA 24153

City of Roanoke, VA MS4 Program Plan 2018-2023



2019 Revision

2021 Update – 9/24/21



Stormwater Utility
Public Works Service Center
1802 Courtland Road, NE
Roanoke, VA 24012

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Glossary of Terms:

The following acronyms are used throughout the MS4 Program Plan and are defined below:

BMP: Best Management Practices.

CVC: Clean Valley Council.

DEQ: Department of Environmental Quality.

DOT: Department of Technology.

EPA: Environmental Protection Agency.

GIS: Geographic Information System.

HUC: Hydrologic Unit Code.

IDDE: Illicit Discharge and Elimination.

MCM: Minimum Control Measures.

MS4: Municipal Separate Storm Sewer System.

NMP: Nutrient Management Plan.

PCB: Polychlorinated biphenyl.

QAPP: Quality Assurance Project Plan.

SOP: Standard Operating Procedures.

SPCC: Spill Prevention Control and Countermeasures Program Plan.

SSO: Sanitary Sewer Overflow.

SWPPP: Stormwater Pollution Prevention Plans.

TMDL: Total Maximum Daily Load.

VDH: Virginia Department of Health.

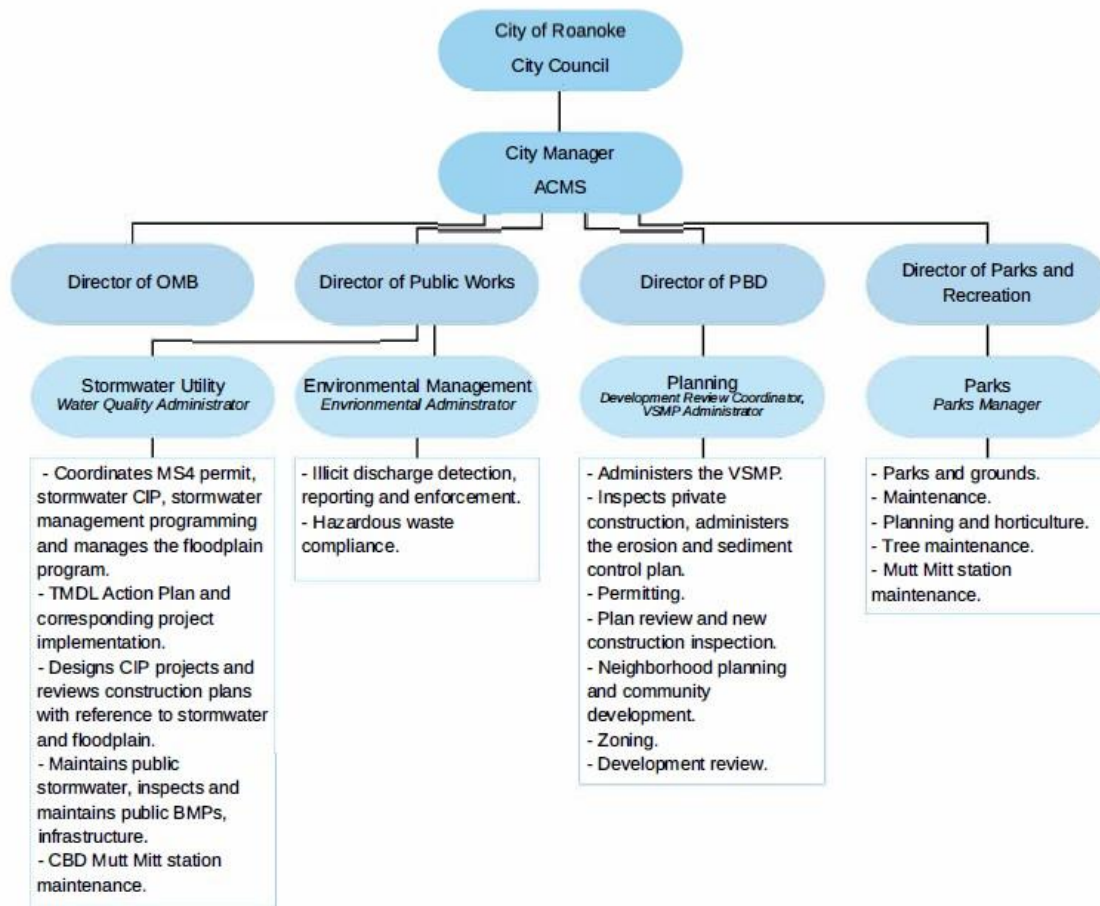
VPDES: Virginia Pollutant Discharge Elimination System.

VSMP: Virginia Stormwater Management Program.

WMP: Watershed Master Plan

WVWA: Western Virginia Water Authority.

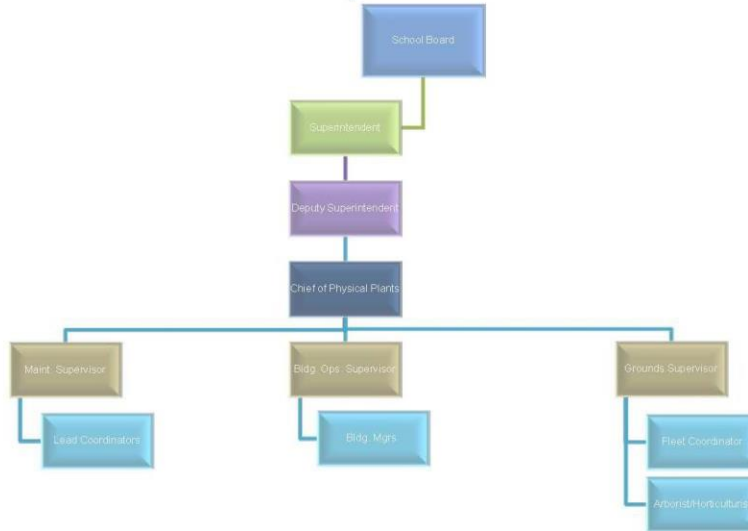
City of Roanoke Stormwater Management Organizational Chart



Roanoke City Public Schools Organizational Chart



Roanoke City Public Schools



- Discharge detection, reporting and enforcement of any/all hazardous waste.
- Insurance of Hazardous waste compliance

- Inspects and maintains storm water drains, etc.
- Maintains Mutt Mitt stations
- Maintains Dumpsters at their location to insure no wastewater runoff.

- Maintains Mutt Mitt stations district wide
- Inspects storm water drains, etc.
- Insurance of hazardous waste compliance of district's grounds.

Jan. 2018

Permit Reference Section I C 1

C. The MS4 program plan.

1. *The MS4 program plan shall include, at a minimum, the following written items:*

a. *The roles and responsibilities of each of the permittee's divisions and departments in the implementation of the requirements of the permit tasked with ensuring that the permit requirements are met;*

b. *If the permittee utilizes another entity to implement portions of the MS4 program, a copy of the written agreement. The description of each party's roles and responsibilities, including any written agreements with third parties, shall be updated as necessary;*

c. *For each of the MCM in Part I E, the following information shall be included:*

(1) *Each specific requirement as listed in Part I E for each MCM;*

(2) *A description of the BMPs [or strategies that the permittee anticipates will be implemented to demonstrate compliance with the permit conditions in Part I E;*

(3) *All standard operating procedures or policies necessary to implement the BMPs;*

(4) *The measurable goal by which each BMP or strategy will be evaluated; and*

(5) *The persons, positions, or departments responsible for implementing each BMP or strategy;*

d. *A list of documents incorporated by reference including the version and date of the document being incorporated.*

Permit Reference Section II B 7

8. *The MS4 program plan as required by Part I B of this permit shall incorporate each local TMDL action plan. Local TMDL action plans may be incorporated by reference into the MS4 program plan provided that the program plan includes the date of the most recent local TMDL action plan and identification of the location where a copy of the local TMDL action plan may be obtained.*

TMDL Action Plans:

- [Sediment and Bacteria TMDL Action Plan](#)
- [PCB TMDL Action Plan](#)

Permit Reference Section I.E.1Relevant Excerpts:

a. *The permittee shall implement a public education and outreach program designed to:*

(1) *Increase the public's knowledge of how to reduce stormwater pollution, placing priority on reducing impacts to impaired waters and other local water pollution concerns;*

(2) *Increase the public's knowledge of hazards associated with illegal discharges and improper disposal of waste, including pertinent legal implications; and*

(3) *Implement a diverse program with strategies that are targeted toward individuals or groups most likely to have significant stormwater impacts.*

b. *The permittee shall identify no less than three high-priority stormwater issues to meet the goal of educating the public in accordance with Part I E 1 a. High-priority issues may include the following examples: Chesapeake Bay nutrients, pet wastes, local receiving water impairments, TMDLs, high-quality receiving waters, and illicit discharges from commercial sites.*

c. *The high-priority public education and outreach program, as a whole, shall:*

(1) *Clearly identify the high-priority stormwater issues;*

(2) *Explain the importance of the high-priority stormwater issues;*

(3) *Include measures or actions the public can take to minimize the impact of the high-priority stormwater issues; and*

(4) *Provide a contact and telephone number, website or location where the public can find out more information.*

The MS4 program plan shall include:

- (1) A list of the high-priority stormwater issues the permittee will communicate to the public as part of the public education and outreach program;*
- (2) The rationale for selection of each high-priority stormwater issue and an explanation of how each education or outreach strategy is intended to have a positive impact on stormwater discharges;*
- (3) Identification of the public audience to receive each high-priority stormwater message;*
- (4) The strategies from Table 1 of Part I E 1 d to be used to communicate each high-priority stormwater message; and*
- (5) The anticipated time periods the messages will be communicated or made available to the public.*

MCM #1: Public Education and Outreach on Stormwater Impacts

Responsible Party: Leigh Anne Weitzenfeld, Water Quality Administrator, 540.853.5910

Objective

The City is committed to educating citizens on stormwater issues and best management practices through a variety of measures. The City supports public education as the basis to increase stormwater awareness in promoting thought and discussion, leading to behavior change and culture as it pertains to the watershed. The City provides resource materials, educational library resources, informative campaigns, and environmental literacy.

Existing Resources

- Partnerships with non-profit organizations such as Clean Valley Council.
- Collaboration with Neighborhood Services, Public Works, Code Enforcement, and Animal Protection and Services, Western Virginia Water Authority, Ride Solutions, and other regional partners.
- Current employment of Stormwater Staff members with strong effective environmental education backgrounds and communication strategies to best serve the public. The Stormwater Division continues investment in outreach education conferences and network opportunities for personnel.
- [City of Roanoke Targeted Outreach Matrix FY18-23](#)

Implementation and Schedule

- FY2019 The City of Roanoke's Stormwater Utility is seeking the professional services of an advertising and marketing agency to assist with development of a Clean Water Legacy strategy designed to engage citizens, change behavior, and result in implementation of private property stormwater best management practices toward the shared goal of "delisting" streams from the USEPA's 303(d) compilation of "impaired" waters. This strategy will include development of a comprehensive, umbrella program in which the City's Stormwater Utility partners with citizens to transform local waterways into community assets, focal points, and sources of pride for those that live, work, and play in the Roanoke River Watershed.
- FY 2020-2022 – The City continues to work with the marketing agency to assist with development of a Clean Water Legacy strategy designed to engage citizens, change behavior, and result in implementation of private property stormwater best management practices toward the shared goal of "delisting" streams from the USEPA's 303(d) compilation of

“impaired” waters.

Related Documents

[Clean Valley Council Contract](#)

BMP 1.1 Stormwater Branding

Responsible Party: Leigh Anne Weitzenfeld, Water Quality Administrator, 540.853.5910

Objective

The objective of this BMP is to project unified, visually cohesive message content for the Stormwater Utility’s MS4 Education Program to reinforce messaging and theme content. The goal is to inspire an appreciation for the local water assets by reconnecting citizens to their local streams and watersheds, encouraging action, behavior change and a larger cultural shift.

Existing Resources

Central message themes include:

- *Love where you live! Together, we can create a Clean Water Legacy.*
- *The City of Roanoke Stormwater Utility’s goal is, Partnering with citizens to transform our waterways into community assets, focal points, and source of pride for those that live, work, learn, and play in the Upper Roanoke River Watershed.*
- *Be part of the solution, not the pollution.*

Examples of Stormwater Branding can be seen in:

- Mutt Mitt signage
- Stormwater vehicle wraps
- [Brochures](#), newsletters, and [social media](#)
- Outreach tent, tablecloth and razor flag
- Roanoke Stormwater logo
- Keep it Clear logo
- Big Lick (pet waste campaign character dog)
- Outreach give-away products : pet waste bag dispensers, reusable shopping bags, plastic bag recyclers, reusable water bottles, brandanas, growable planters, stickers, lanyards, hand sanitizer, and magnets

Implementation and Schedule

Ongoing development, as needed

Documentation and Measure of Effectiveness

Brand awareness will develop over time with message repetition.

BMP 1.2 Educational Library Resources

Responsible Party: Leigh Anne Weitzenfeld, Water Quality Administrator, 540.853.5910

Objective

The purpose of the educational library resources is to increase Stormwater Utility's MS4 Education content to a wide demographic through use of print, digital media, and promotional videos. The goal is to educate citizens using a variety of methods to provide various outlets for learning. Knowledge and implementation of best management practices will promote behavior change in reducing stormwater pollution.

Existing Resources

New and Previously Developed Material to Address Specific TMDLs		
Created/Modified	Name	Pollution Addressed
<i>Newsletter</i>		
FY16	The Roanoke River Report "Roanoke River Currents" (quarterly)	Illicit Discharge, Sediment, PCBS, Bacteria
<i>Brochure</i>		
FY16	Here's the Scoop. Do Your Doody and Clean up after your Pet.	Illicit Discharge and Bacteria
FY16	Contractor's Guide. Stormwater Pollution Prevention Requirements.	Illicit Discharge and Sediment
FY16	Keep it on the Lawn: Tips for Keeping Stormwater Clear. A guide to mulch-mowing.	Sediment
FY17	Should I be concerned about PCBs?	Illicit Discharge and PCBs
FY17	Flood Preparedness and Recovery Guide. Disaster Response Information.	Illicit Discharge
FY18	Citizen Science Water Monitoring Program	Illicit Discharge, Bacteria and Sediment
FY18	Understanding Stormwater Pollution.	Illicit Discharge, Bacteria and

		Sediment
FY18	Flooding in Roanoke	Illicit Discharge
FY19	Fats, Oils, and Grease: Restaurant Stormdrains	Illicit Discharge and Bacteria
FY19	Septic Smart Awareness	Illicit Discharge and Bacteria
<i>Inserts</i>		
FY19	Clean Water	Illicit Discharge, Sediment, Bacteria
FY19	Benefits of Urban Trees	Sediment
FY20	Tire Disposal	Illicit Discharge
<i>Door Hanger</i>		
FY18	"Keep it on the Lawn (English & Spanish)	Sediment and Nutrients
<i>Postcards</i>		
FY15	Restaurant Postcard Only Rain May Go Down the Storm Drain	Illicit Discharge and Bacteria
FY15	Car Wash Postcard Only Rain May Go Down the Storm Drain	Illicit Discharge
<i>Publications</i>		
FY15	Roanoke Stormwater Ideabook for Single Family Homeowners	Illicit Discharge, Bacteria, Sediment
FY15	Stormwater Utility Fee Credit Manual Single Family Residential Properties	Illicit Discharge, Bacteria, Sediment
FY15	Stormwater Utility Fee Credit Manual Commercial, Industrial, Institutional, and Multifamily	Illicit Discharge, Bacteria, Sediment
FY20	State of Our Waters Document	Illicit Discharge, Bacteria, Sediment, PCBs
<i>Yard Signs</i>		
FY18	Scoop the Poop – Mill Mountain Garden Club	Bacteria
FY19	Scoop the Poop – Tail Chaser Event	Bacteria
<i>Posters</i>		
FY15	Dog Poop Doesn't Disappear	Bacteria
FY16	Stormwater Villains	Illicit Discharge, Bacteria,

		Sediment, PCBs
FY16	Is the stream near your home impaired?	Illicit Discharge, Bacteria, Sediment, PCBs
FY17	Why Scoop the Poop?	Bacteria
FY17	Think picking up your dog's poop is unpleasant?	Bacteria
FY18	Watershed Memories	Education to bring connection to watershed
<i>Mutt Mitt Signs</i>		
FY18	Parks and Greenways: <ul style="list-style-type: none"> • Children play here. Please pick up after your pet. • Love where you live. • Together we can create a Clean Water Legacy. • Be part of the solution not the water pollution. • If it's in our walkways, it's in our waterways. 	Bacteria
	Right of Way: <ul style="list-style-type: none"> • Doo pick up. It's the law. • Be part of the solution, not the pollution. • If it's in our walkways, it's in our waterways. • Love Where You Live. 	Bacteria
<i>Advertisements</i>		
FY18	Bus Ads	Illicit Discharge and Bacteria
<i>Digital Media</i>		
FY15	Roanoke Stormwater Website	Illicit Discharge, Bacteria, Sediment, PCBs
FY15	Roanoke Stormwater Facebook	Illicit Discharge, Bacteria, Sediment, PCBs
FY15	Roanoke Stormwater Twitter	Illicit Discharge, Bacteria, Sediment, PCBs
FY15	Roanoke Stormwater Pinterest	Illicit Discharge, Bacteria, Sediment, PCBs
FY17	Roanoke Stormwater Instagram	Illicit Discharge, Bacteria, Sediment, PCBs

FY18	City of Roanoke Nextdoor	Illicit Discharge, Bacteria, Sediment, PCBs
<i>Promotional Videos</i>		
FY15	What does washing your car have to do with Stormwater and the health of the Roanoke River?	Illicit Discharge
FY16	Fall Leaf Solutions. Try Mulch Mowing	Illicit Discharge
FY17	Mulch-Mowing Benefits	Illicit Discharge
FY19	Scoop the Poop	Bacteria
FY19	Keep pollutants from entering our waterways all year round.	Illicit Discharge
FY19	Pollution Nightmare	Illicit Discharge, Bacteria
FY19	Stormwater Information Videos	Illicit Discharge, Bacteria, Sediment, PCBs
FY20	Clean Water Starts at Home	Illicit Discharge, Bacteria, Sediment
FY20	Roanoke Stormwater YouTube Channel Videos	Bacteria, Illicit Discharge

Implementation and Schedule

Ongoing development, as needed.

Documentation and Measure of Effectiveness

Environmental library resources will develop over time with message repetition.

BMP 1.3 Pet Waste Campaign

Responsible Party: Leigh Anne Weitzenfeld, Water Quality Administrator, 540.853.5910

Renee Powers, Trails and Greenways Coordinator, 540.853.5867

Objective

The goal of the pet waste campaign is to reduce bacteria pollution by making dog owners aware of this bacteria pollution source, remove potential barriers for dog owners to pick up after their pets and properly dispose of pet waste.

Dog owners will be targeted with education and outreach efforts. The target audience is based on the number of registered dog owners in the City of Roanoke.

Existing Resources

Mutt Mitt stations, education resources, signage and other outreach methodologies as outlined in the chart below under strategy column.

Implementation & Schedule

The City will perform the following to support this BMP:

- FY 2019-23 Prepare and distribute brochures to local businesses, the municipal building, and hand out at outreach events.
- FY 2019-23 Include messaging on social media about picking up after pets and disposing of waste properly.
- FY 2019-23 The City will maintain current mutt mitt stations and install new stations as staff determines they are needed.
- FY 2019-23 Continue to distribute the “scoop the poop” message using brochure and other outreach materials.

Documentation and Effectiveness

A summary of target audiences, activities, including examples of newsletter, social media messages, brochures, and outreach events, etc. will be included in each annual report. The following information will be included in the report to help document and assess the effectiveness of this BMP:

<i>Target Audience: Pet Owners</i>		
Strategy	Audience Tracking Method	Estimated Annual Reach
Social Media Message	Social media followers	20,000-25,000
Webpage	Web Page Visitors	2,500 – 3,500
Brochures and Bag Dispensers at Animal Shelters and Vet Offices	# of brochures dropped off per year.	400 (approx. 200-300 pet waste bag dispensers, 50-100 brochures)

Direct Mail	# of property tax recipients	58,000
Public Presentations	# of citizens present	100 – 200 (In-person) 1,500 – 2,000 (virtual)
Residential Welcome Bags	# of materials donated per year	100 - 150
Outreach Events: Education and distribute branding materials such as: Big Lick, slogans, pet waste bag dispensers, plastic bag dispensers, Scoop the Poop brochure	# of outreach materials given away (typically each citizen interaction includes a product or brochure giveaway)	300 - 600
Videos	# of views	Varies based on method of promotion or publication.
Mutt Mitt Stations and pick up after your pet signage. Location Map	To be determined based on data from bags purchased annually, casual observation and conversations with affected business owners in CBD & on greenway, waste collection and count at dog parks pre and post signage.	Varies based on location and time of year.

Related Documents

[City of Roanoke Sediment and Bacteria Action Plan](#)

[Highland and Thrasher Dog Park SWPPP](#)

BMP 1.4 Septic Awareness Campaign

Responsible Party: Leigh Anne Weitzenfeld, Water Quality Administrator, Stormwater Division

Objective

The goal of the local efforts is to reduce bacteria pollution by making homeowners aware of septic system care. Information will be conveyed for proper maintenance and recognition of issues. Information will be included on resolution to potential barriers. Potential collaborative partners for septic issue resolutions are the WVWA and VDH.

Property owners will be targeted with education and outreach efforts. The target audience is based on the number of real estate tax bills prepared by the City of Roanoke.

Existing Resources

Septic smart week resources using the EPA tool kit.

Implementation & Schedule

The City will perform the following to support this BMP:

- FY 2019-23 Continued coordination with WVWA (319 funds) to connect identified neighborhoods to sanitary sewer.
- FY 2019-21 Planning and coordinating an update of City Code Section 26, that would require documentation of septic tank pumping and field inspection at least every 5 years.
- FY2019-23 Annual mailing in conjunction with Septic Smart Week.

Documentation and Effectiveness

A summary of target audiences, activities:

<i>Target Audience: Septic Homeowners</i>		
Strategy	Audience Tracking Method	Estimated Annual Reach
Social Media Message	Social Media Followers	20,000-25,000
Web Page	# of page visits	2,500 – 3,500
Partnership with Fire Marshalls	# of outreach materials given	200
Mailer	# of recipients	1828

BMP 1.5 Sediment Reduction Campaign

Responsible Party: Leigh Anne Weitzenfeld, Water Quality Administrator, 540.853.5910

Objective

The goal of the local efforts is to reduce bare soil from washing into the stormdrain by educating citizens on how sediment is a pollutant and measures in preventing soil erosion.

Existing Resources

- [Understanding Stormwater Brochure](#)
- [Mulch Mowing Brochure](#)
- [Contactor Brochure](#)

Implementation & Schedule

The City will perform the following to support this BMP:

- FY 2019-23 Prepare and distribute brochures to local businesses, the municipal building, and hand out at outreach events.
- FY 2019-23 Include messaging on social media about reducing sediment pollution.
- FY 2019-23 Host rainbarrel workshops for City employees and for the public in partnership with CVC.

Documentation and Effectiveness

A summary of target audiences and activities:

<i>Target Audience: Citizens</i>		
Strategy	Audience Tracking Method	Estimated Annual Reach
Social Media Message	Social Media Followers	20,000-25,000
Web Page	# of page visits	2,500 – 3,500
Outreach Events	# of outreach materials given away	50

Related Documents: [City of Roanoke Sediment and Bacteria TMDL Action Plan](#)

BMP 1.6 Environmental Literacy

Responsible Party:

Leigh Anne Weitzenfeld, Water Quality Administrator, 540.853.5910

Courtney Plaster, Executive Director, Clean Valley Council, 540.345.5523

Objective

The purpose of environmental literacy is to target school age demographic to increase education on how to prevent stormwater pollution from entering the MS4. The City has an ongoing, multi-year contract with Clean Valley Council to educate k-12 on methods and implementation of best management practices.

Existing Resources

Presentations to local schools, Stenciling Inlet program, Earth Summit, Summer Camp

Implementation & Schedule

- FY 2019-23 Stormwater donates books to Star City Reads Program targeting early education readers with water quality and environmental messaging.

The City will contract Clean Valley Council to perform the following to support this BMP:

- FY 2019-23 Provide environmental educational resources and programming about litter prevention and reuse, recycling, and reduction of the waste stream and stormwater issues for school systems, the public and local municipalities.
- FY 2019-23 Include messaging on social media about how to reuse products, reduce pollution, and recycle.
- FY 2019-23 Perform stormdrain stenciling with citizen and/or school groups.

Documentation and Effectiveness

Environmental literacy will develop over time with message repetition. Documentation and effectiveness based on data delivered from Clean Valley Council annual report.

BMP 1.7 PCB Awareness

Responsible Party: Leigh Anne Weitzenfeld, Water Quality Administrator, 540.853.5910

Objective

The goal of the local efforts is to bring awareness about PCBs by distributing information on the proper identification, handling, and disposal of PCBs, which will encourage the behavior of reducing the potential for any residual PCBs from entering the storm drain system. This BMP will be the first step in keeping our waters safe and healthy for everyone.

Existing Resources

[PCB Awareness Brochure](#)

Implementation & Schedule

The City will perform the following to support this BMP:

- FY 2019-23 Distribute brochures via direct mail to targeted local businesses, on display in the municipal building, and handed out at outreach events.
- FY 2019-23 Include messaging on social media explaining what PCBs are and what should you do to prevent PCBs from further entering the environment.
- FY 2020-21 Collaborate with UMBC to monitor strategic areas for PCBs and get accurate data for further planning.

Documentation

City of Roanoke PCB TMDL Action Plan and GIS Mapping of watershed risk mapping and inventory of streams and the river.

Measurement of Effectiveness

Baseline establishment in identifying PCB sources, finding resolution to reducing PCBs from entering MS4, and analyzing research on clean up strategies

Related Documents

[City of Roanoke PCB TMDL Action Plan](#)

BMP 1.8 Lawn Management and Yard Debris

Responsible Party: Leigh Anne Weitzenfeld, Water Quality Administrator, 540.853.5910

Objective

The goal of the local efforts is to reduce excess nutrient pollution, illicit discharges, reduce localized flooding, and increase organic soil matter, by educating citizens and local businesses and providing solutions to address the issue.

Existing Resources

[Mulch Mowing Brochure](#) and [Understanding Stormwater Brochure](#)

Implementation & Schedule

The City will perform the following to support this BMP:

- FY 2019-23 Distribute brochures to local businesses, the municipal building, and handed out at outreach events.
- FY 2019-23 Include messaging on social media about best management practices concerning lawn care.
- FY 2019-23 Develop brochure targeted to contract and commercial landscape services with helpful best management practice tips for lawn care and how to prevent illicit discharges from entering the MS4.

Documentation and Effectiveness

The table is a summary of target audiences and activities:

<i>Target Audience: Residents and Local Businesses</i>		
Strategy	Audience Tracking Method	Estimated Annual Reach
Social Media Message	Social Media Followers	20,000-25,000
Web Page	# of page visits	2,500 – 3,500
Outreach Events - Brochure	# of outreach materials given away	30-40
Door Hangers	# of QAlerts	50 - 100 grass/leaves in streetrequests

Permit Reference Section I. E. 2

The MS4 program plan shall include:

- (1) The webpage address where mechanisms for the public to report (i) potential illicit discharges, improper disposal, or spills to the MS4, (ii) complaints regarding land disturbing activities, or (iii) other potential stormwater pollution concerns;*
- (2) The webpage address that contains the methods for how the public can provide input on the permittee's MS4 program; and*
- (3) A description of the public involvement activities to be implemented by the permittee, the anticipated time period the activities will occur, and a metric for each activity to determine if the activity is beneficial to water quality. An example of metrics may include the weight of trash collected from a stream cleanup, the number of participants in a hazardous waste collection event, etc*

MCM #2 Public Involvement and Public Participation

Responsible Party: Leigh Anne Weitzenfeld, Water Quality Administrator, 540.853.5910

Objective

The City has a strong commitment to honoring the public involvement permit requirement and increasing public participation in watershed events. The City supports public involvement as the foundation to increasing social capacity to change behavior and ultimately culture as it pertains to the watershed. The City actively promotes external environmental events, collaborates with partner organizations, sponsors events, and serves on environmental advisory committees.

Existing Resources

- Partnerships with non-profit organizations such as Clean Valley Council.
- Collaboration with the Western Virginia Water Authority and Roanoke City Schools.
- Current employment of Stormwater Staff members with strong effective environmental education backgrounds and communication strategies to best serve the public. The Stormwater Division continues investment in outreach education conferences and network opportunities for personnel.

BMP 2.1 Program Plan and Annual Reports for Public View

Responsible Party: Leigh Anne Weitzenfeld, Water Quality Administrator, 540.853.5910

Objective

The MS4 Program Plan and Annual Report will be available for public view on the [Stormwater Website](#). This will make the MS4 program information and annual progress and evaluation available to the public.

Implementation and Schedule

- Posted each year within 30 days of Annual Report submission.

Documentation and Effectiveness

Documentation will be the presence of the Program Plan and Annual Report online.

BMP 2.2 Annual Community Involvement Events

Responsible Party: Leigh Anne Weitzenfeld, Water Quality Administrator, 540.853.5910

<i>Event/Program</i>	<i>City Participations</i>	<i>Implementation</i>	<i>Documentation & Effectiveness</i>
<u>Adopt-a-Street</u>	Program promotion in newsletter, State of our Waters, website, and social media.	Ongoing	Record # of street adoption/participation each year
Cleanup Events	<ul style="list-style-type: none"> - Program promotion in newsletter and social media - After event media follow up - City planning and co-sponsorship of Deschutes River Clean up 	<ul style="list-style-type: none"> - Clean Valley Day - Deschutes River Cleanup - Fall Waterways - "Anytime Clean Ups" 	Record # of events/participants and trash tons collected per year
Festivals/Outreach Events	<ul style="list-style-type: none"> - Program promotion in newsletter and social media - Event sponsorship and/or vendor participation 	<ul style="list-style-type: none"> - Go Fest - Melrose Fall Festival - Banff Film Festival - Riverfest - Preparethon 	Record # of promotional material given away as well as total event attendance.

BMP 2.3 Biological Monitoring

Responsible Party: Leigh Anne Weitzenfeld, Water Quality Administrator, 540.853.5910

Danielle DeHart, Environmental Specialist, 540.853.5915

Objective

The objective of this program is to provide a baseline for aquatic macro-invertebrate health, the presence or absence of which are excellent indicators of surface water quality. Documenting trends will help the City to assess if implemented TMDL BMPs are improving surface water quality over time. The program has two parts for collecting this type of data; a volunteer citizen science program and a contractor program. The goal of the citizen science program is to educate citizens about local water quality and the land use/water quality relationship. This program provides citizens with a tangible way for community involvement with their efforts being used for an important purpose. Monitoring results by the citizen science program will be displayed publicly on the [CVC website](#), as part of the City-CVC annual, [multi-year contract](#). The contractor will use the Virginia Stream Condition Index to determine a stream health score. This data is level III quality that can be used to better assess streams.

Existing Resources

- 30 monitoring kits
- Interactive GIS monitoring [map](#) detailing monitoring locations with results
- [QAPP](#)
- Program Manager, contracted by CVC
- Data Quality Assurance Officer, Danielle DeHart

Implementation and Schedule

- FY 2019-23 Train new trainers to expand the program.
- FY 2019-23 Continue to host training twice a year (as COVID safety protocols allow).
- FY 2019-23 Contract with professional biologist for VSCI sampling at 20 sites twice per year.

Documentation and Effectiveness

- Volunteer retention over time
- Measurement of volunteer involvement to highlight/promote watershed health
- Building a solid baseline of monitoring data for most watersheds within the city limits, data submitted in each Annual Report.

BMP 2.4 Bacteria Monitoring

Responsible Party: Leigh Anne Weitzenfeld, Water Quality Administrator, 540.853.5910

Mckenzie Brocker, Environmental Specialist, 540.853.5914

Objective

The purpose of the bacteria monitoring program is to access levels of bacteria throughout the City and develop a baseline for optimization for source tracking and decision making. The program will be developed as an adaptive, iterative process. This data will help inform, sharpen and narrow the City's efforts to track down and resolve bacteria pollution sources. Collaborative relationships with the VDH and the WVWA will be imperative to find solutions and resolve failing septic and sanitary sewer infiltration and exfiltration issues that affect the city's MS4.

Existing Resources

QAPP Bacteria Plan, DEQ-approved plan, program achieving Level III data

IDEXX® Colilert method outlined in [QAPP](#) methodology

Implementation & Schedule

<i>Bacteria Monitoring</i>	
Date	Description
2018 January – February	Wrote QAPP, purchased supplies, determined baseline monitoring points based on hotspots, aging / failing septic data, known sanitary sewer overflow sites, and MS4 outfall locations. Developed monitoring app and corresponding GIS site and result map.
2018 April	Began monitoring program.
Ongoing	Based on lessons learned and bacteria data, each watershed will be targeted for additional monitoring to develop patterns and target sources.
2019 December - Ongoing	HF183 Bacteria Monitoring. Collaborate with HRSD to use DNA Microbial Source Tracking to determine the specific source of fecal indicator bacteria in the environment. MST quantifies the presence of human specific DNA based markers. The presence of human markers measured by MST is indicative of recent sewage contamination.

Documentation

GIS Mapping of monitoring stations and results, HF183 Monitoring and Source Tracking Resolution, and affected MS4 inlets from SSOs. Data reported in each Annual report.

Measurement of Effectiveness

Baseline establishment, mapping results, monitoring wet weather events in MS4 manholes and/or outfalls for source tracking. Identifying individual sources, finding resolution to pollution sources.

Related Documents

[Lick Run Watershed Master Plan](#) (pgs. 47-51);

[Tinker, Glade, Carvin Creek Watershed Master Plan](#) (pgs. 54-59);

[Trout Run Watershed Master Plan](#) (pgs. 66-72, 138-139)

[Peters Creek Watershed Master Plan](#) (pgs. 79-82, 103)

BMP 2.5 Rain Barrel Workshop Program

Responsible Party: Courtney Plaster, Executive Director, Clean Valley Council, 540.345.5523

Objective

The goal of this program is to reach out to neighborhoods and get citizens involved learning how to make a rain barrel and how to use a rain barrel. Education on the benefits of rain barrels for water quality is provided through a presentation and outreach materials. Each participant makes a rain barrel to take with them for use on their property.

Existing Resources

- Tool kits procured and provided by CVC for rain barrel workshops.

Implementation & Schedule

- This is an ongoing program with at least two annual events.

Documentation and Effectiveness

- Record rain barrel workshops done by CVC in Annual Report.

BMP 2.6 Stormdrain Stenciling Program

Responsible Party: Courtney Plaster, Executive Director, Clean Valley Council, 540.345.5523

Objective

The goal of this BMP is to draw attention to the link between inlets and local streams. As part of the City's contract with Clean Valley Council, CVC organizes storm drain marking events. Clean Valley Council takes volunteers and, using a stencil and spray paint, would mark a storm drain with the words "Dump No Waste, Drains to River." Marked storm drains are recorded in an iPad and mapped on City GIS.

Existing Resources

- Stenciling and paint supplies at CVC.
- [Inlet Art Pilot Program](#)

Implementation & Schedule

FY 2020 – Inlet Art Program – Collaborate with Economic Development to expand to other sections of the City.

Documentation and Effectiveness

Photographs and citizen feedback will be included as a measure of program success.

BMP 2.7 Household Hazardous Waste Collection Program Promotion

Responsible Party: Leigh Anne Weitzenfeld, Water Quality Administrator, 540.853.5910

Danielle DeHart, Environmental Specialist, 540.853.5915

Objective

The Roanoke Valley Resource Authority, of which the City is a member, holds regular household hazardous waste collection events for citizens. They collect used oil, aerosol cans, latex paint, vehicle batteries, and antifreeze on a daily basis, and collect most other types of household hazardous waste on the 3rd Saturday of every month.

Implementation and Schedule

This program is implemented on an ongoing basis.

- FY 2019-23 Stormwater plans use social media to advertise the monthly events.

Documentation and Effectiveness

Documentation of this activity will be a report from the Roanoke Valley Regional Authority showing participation by area residents, amounts of wastes collected, and their related program expenditures.

BMP 2.8 Drug Take Back Event Promotion

Responsible Party: Leigh Anne Weitzenfeld, Water Quality Administrator, 540.853.5910

Danielle DeHart, Environmental Specialist, 540.853.5915

Objective

The objective of this program is to provide opportunities for citizens to safely dispose of unused or unwanted medications. This opportunity helps to keep medical contaminants out of the surface waters since the WVWA's Water Pollution Control Plant cannot remove them prior to releasing treated water back into the Roanoke River.

Implementation & Schedule

The City of Roanoke promotes this event on social media to help get the message out.

Documentation and Effectiveness

Documentation can include measurement of drugs dropped off for special event days and the permanent drop off site at the Roanoke County Juvenile Relations Building.

BMP 2.9 Regional Stormwater Management Planning

Responsible Party: Marcus Aguilar, Senior Stormwater Research Engineer, 540.853.5918

Objective

Management strategies and interpretation of permit provisions are often discussed in these meetings. This close coordination helps all localities ensure their methods of stormwater management and permit compliance are the best they can be, are reasonably aligned and most appropriate and accurate in meeting both permit conditions as well as common goals for regional water quality.

Existing Resources

- The Roanoke Valley Alleghany Regional Commission orchestrates these meetings.

Implementation & Schedule

Quarterly meetings headed by the Roanoke Valley Alleghany Regional Commission.

Documentation and Effectiveness

Documentation of meeting dates and the City's participation in the quarterly meetings.

Permit Reference Part I E 3

d. The MS4 program plan shall include:

- (1) The MS4 map and information table required by Part I E 3 a. The map and information table may be incorporated into the MS4 program plan by reference. The map shall be made available to the department within 14 days upon request;
- (2) Copies of written notifications of new physical interconnections given by the permittee to other MS4s; and
- (3) The IDDE procedures described in Part I E 3 c.

MCM #3 Illicit Discharge Detection and Elimination

The City will develop and maintain a response and enforcement program for an ordinance prohibiting illicit stormdrain system discharges.

Responsible Party: Christopher Blakeman, Environmental Manager, 540.853.1173

The City will develop and maintain an accurate MS4 map and information table.

Responsible Party: David Cooper, Stormwater GIS Specialist, 540.853.5912

BMP 3.1 IDDE Ordinance

Responsible Party: Christopher Blakeman, Environmental Manager, 540.853.1173

Objective

The City's IDDE Ordinance establishes the MS4 program authority and requirements for illicit discharge detection and elimination compliance with the MS4 and VPDES permits. Implementation of illicit discharge standard operating procedures (SOPs) will provide a clear direction for response and enforcement of the IDDE Ordinance.

Existing Resources

- [Stormwater Discharge Requirements Ordinance](#), Chapter 11.3
- [City of Roanoke Outfall Surveillance SOP](#)
- [Illicit Discharge Detection and Elimination SOP](#)

Implementation & Schedule

Annual review and updates as necessary for permit compliance and operational effectiveness.

Documentation and Effectiveness

- Documentation of this BMP will be the annual reporting of IDDE Ordinance violations and corrective actions that were taken.

- Expeditious resolution of a given IDDE issue within reason and considerable variability of each unique situation. While variability exists in the form of pollution severity, known or unknown sources, and intentional vs. unintentional acts, the City remains diligent in addressing the matters until they are successfully resolved.

3.2 Maintain GIS Asset Inventory Database for the City Stormdrain System

Responsible Party: David Cooper, Stormwater GIS Specialist, 540.853.5912

Objective

The City maintains and continuously updates a stormdrain system asset inventory using GIS. All conveyance systems, pipe structures, catch basins, inlets, nodes, manholes and other relevant data types are recorded, mapped and tracked. Updates are in concurrence with individual [Watershed Master Plans](#) or on an as needed basis. Stormdrain system mapping gives City staff a complete representation for illicit discharge tracking and annual outfall screening.

Existing Resources

The City has a dedicated GIS technical staff member on the Stormwater team. There is coordination among DOT/GIS Departments, the Stormwater Division, and the Planning Department. The City has prepared an online map detailing the stormdrain system, outfalls, and catchment areas. Outfalls may be selected via computer mouse click which then displays the highlighted boundary of the corresponding total drainage area on the map. A legend is present to communicate the various layer details associated with the map. An information table includes stormdrain system infrastructure types, outfall identification number, receiving waters, impairments along with the associated TMDL, HUC, and drainage areas and acreage is available as well. This [map](#) will be available online and in paper format at citizen request.

Implementation & Schedule

- FY 2019 Added watershed layer as a feature on the public GISmap under the Planning Layers.
- FY 2019-2023 VueWorks may be fully implemented. This system will integrate GIS data, track infrastructure data, including age, outfall reconnaissance, and work orders for maintenance requests.

Documentation and Effectiveness

- The City will provide an annual summary of completed watershed asset inventory.
- The City will provide required information on any new MS4 outfall.
- Effective illicit discharge source tracking through GIS asset inventory and drainage catchment boundaries, included in the Annual Report.

- The City will notify downstream MS4s of any physical interconnections as they are discovered.
- As Watershed Master Plans are created, the outfalls can be updated and the catchments can be refined.

BMP 3.3 Maintain IDDE Survey and Investigation Program

Responsible Party: Christopher Blakeman, Environmental Manager, 540.853.1173

Objective

The City has and will maintain a program to conduct prioritized dry weather surveys of all watersheds within the City, wherein all outfalls will be systematically inspected. Further the City has and will maintain an inspection and enforcement program for improper/unauthorized discharges and/or connections to the stormdrain system. In the event that suspect discharges and/or connections are found, all relevant facts will be gathered during the investigation, and enforcement measures may be used where appropriate.

Existing Resources

- GIS map
- iPad data entry using the GIS-affiliated Survey123 app collects data over time and associates the data to a specific outfall or stormdrain system structure.

Implementation & Schedule

FY 2018-23 Field screening for dry-weather outfall surveillance is prioritized using the following basic criteria:

- Known bacteria hotspots will be monitored for human marker HF193 and source tracked.
- Referrals and/or IDDE Investigations: All outfalls affiliated with suspect or known pollution referrals, as well as those associated with any confirmed release IDDE Investigations.
- Geographic Location: In an effort to ensure that all City of Roanoke outfalls are screened, those affiliated with each watershed sub-basin will be inspected in a counterclockwise rotation around the City, followed by screenings of those discharging directly to the Roanoke River.
- Hotspot/Targeted Investigations: Data collected regarding various high risk activities, land use and other categories will be used to develop focused outfall and IDDE risk surveys of the subject area outfalls, and suspect sites within the contributing drainage areas.

Documentation and Effectiveness

The City will document the number of illicit discharges and/or connections found, along with narrative of how each incident was resolved.

Related Resources

[Lick Run Watershed Master Plan](#) (pgs. 85-89);

[Tinker, Glade, Carvin Creek Watershed Master Plan](#) (pgs. 54-56).

[Trout Run Watershed Master Plan](#) (pgs. 64-68, 73-74)

BMP 3.4 Maintenance/Construction Crew Inspections for ID and Improper Connections

Responsible Party: Brandon Hall, Maintenance Supervisor, 540.853.5917

Objective

As Stormwater system maintenance and/or construction crews are working, they will inspect all stormwater infrastructure within the work area for illicit discharges and/or connections. If necessary, CCTV camera rovers will be used to track these discharges.

Existing Resources

- CCTV camera with dedicated field staff
- IDDE Ordinance, investigation, referral, and enforcement process

Implementation & Schedule

Implemented on an on-going basis.

Documentation and Effectiveness

The City will document the number of illicit discharges and/or connections found along with a narrative of how each incident was resolved.

BMP 3.5 iRoanoke App/QAlert System

Responsible Party: David Cooper, Stormwater GIS Specialist, 540.853.5912

Objective

To provide a way to empower citizens to report potential stormwater issues, pollution, or illicit discharges.

Existing Resources

- iRoanoke allows citizens to report new issues using their smartphone's GPS and camera capabilities, review existing requests, send updates, and receive phone and email notifications of status changes on their issues. The iRoanoke app is free to Android and Apple users and can be downloaded through [Google Play](#) or the [App Store](#).
- The app integrates directly with the City's QAlert system. The City's QAlert system was established in 2014 as a database for customer service requests. The QAlert system routes each request to the responsible party for quick resolution.
- Citizens can report issues to Q-Alert through [Twitter](#).
- Citizens can alternatively call 853.2000 or email stormwater@roanokeva.gov to report issues. All reporting methods are outlined on the main [City of Roanoke Stormwater webpage](#).

Implementation & Schedule

- The City continues to maintain the customer service line and iRoanoke app. The City will promote the availability and use of these tools through the website, social media, and outreach events.
- FY-2019-21 Q-Alert successfully integrated into VueWorks and translated into work orders.

Documentation and Effectiveness

- The City will track the number of iRoanoke app users.
- The City will provide documentation of the number of QAlerts routed as "illicit discharges" in the MS4 Annual Report

BMP 3.6 Restaurant Waste and Equipment Maintenance

Responsible Party: Christopher Blakeman, Environmental Manager, 540.853.1173

Objective

The City is coordinating with [Downtown Roanoke Inc.](#) to reduce restaurant grease and waste oil pollution control risks in the downtown business area.

Existing Resources

- Revised City of Roanoke Solid Waste Ordinance codifying proper FOG storage, handling and disposal practices, and elevating penalties to Class I Misdemeanor status.

Implementation & Schedule

- FY 2019 Ordinance revision published on [Municode sections c-e under Chapter 14.1-54.1.](#)
- FY2019-2023 FOG brochure mailed to City restaurants each year on proper disposal of FOGs. Currently brochures will be mailed out to new restaurants as well as distributed by Fire Marshals during inspections. Stormwater also continues to work with Downtown Roanoke Inc. and the OEM to educate downtown restaurants.

Documentation and Effectiveness

- Reduction in the number of illicit discharge grease pollution reports.

BMP 3.7 Illicit Discharge Detection and Elimination Training

Responsible Party: Leigh Anne Weitzenfeld, Water Quality Administrator, 540.853.5910

Mckenzie Bocker, Environmental Specialist, 540.853.5914

Objective

Teach City employees what to look for and how to properly report the information. By virtue of their near daily presence throughout the City, these employees are front line resources in spotting illicit discharges; therefore they are essential partners to reduce pollution.

Existing Resources

- Biennial Stormwater Training which includes **Excal MS4 Illicit Discharge Detection and Elimination Training Video and the Excal Raincheck.**
- [Dashboard Decals](#) – Stickers that provide a quick reference for field personnel of what to look for and who to call.

Implementation & Schedule

This BMP is continuously implemented.

- FY 2019-20 Spill specific training added annually in conjunction with Division Safety Meetings.
- FY 2019-2023 Replenish dashboard decals/add to new vehicles during stormwater training every other year.

Documentation and Effectiveness

Training activities will be tracked and documented under MCM#6 in the Annual Report.

Permit Reference Section II.B.4. Relevant Excerpts:

e. MS4 Program requirements. The operator's MS4 Program Plan shall include:

(1) A description of the legal authorities utilized to ensure compliance with the minimum control measure in Section II related to construction site stormwater runoff control such as ordinances, permits, orders, specific contract language, and interjurisdictional agreements;

(2) Written plan review procedures and all associated documents utilized in plan review;

(3) For the MS4 operators who obtain department-approved standards and specifications, a copy of the current standards and specifications;

(4) Written inspection procedures and all associated documents utilized during inspection including the inspection schedule;

(5) Written procedures for compliance and enforcement, including a progressive compliance and enforcement strategy, where appropriate; and

(6) The roles and responsibilities of each of the operator's departments, divisions, or subdivisions in implementing the minimum control measure in Section II related to construction site stormwater runoff control. If the operator utilizes another entity to implement portions of the MS4 Program Plan, a copy of the written agreement must be retained in the MS4 Program Plan. The description of each party's roles and responsibilities, including any written agreements with third parties, shall be updated as necessary.

Reference may be made to any listed requirements in this subdivision provided the location of where the reference material can be found is included and the reference material is made available to the public upon request.

f. Reporting requirements. The operator shall track regulated land-disturbing activities and submit the following information in all annual reports:

(1) Total number of regulated land-disturbing activities;

(2) Total number of acres disturbed;

(3) Total number of inspections conducted; and

(4) A summary of the enforcement actions taken, including the total number and type of enforcement actions taken during the reporting period.

MCM #4 Construction Site Stormwater Runoff Control

Responsible Party: Adrian Gilbert, Development Review Coordinator, 540.853.5796

Objective

The City will develop and maintain a response and enforcement program for an ordinance prohibiting illicit stormdrain system discharges.

- [City of Roanoke VSMP Approval Letter](#)

Erosion and Sediment Control Program		
VESCP Program Role	Name	Certification Type/Expiration or "Provisional"
Administrator	Adrian Gilbert, Development Review Coordinator	DUAL Combined Administrator - DCA0231 - 3/4/22

Inspector(s)	Robert E. Eakin	E&SC Inspector - 3810 - 11/30/22; SWM Inspector - SWIN0836 – 11/30/22
	Winston Corbett	DUAL Inspector - DIN0339 - 12/15/23
	Brooke Dean	DUAL Inspector - DIN0368 - 04/18/22, E&S Combined Administrator #ESCA0396 - Exp 1/09/2023
Plan Reviewer(s)	Kenneth E. Richardson, PE	Stormwater Management Plan Reviewer - SWPR0127 - 6/05/23
	Aaron Cypher	Dual Combined Administrator #DCA0293 - Expires 11/12/2023
	Brooke Dean	DUAL Inspector - DIN0368 - 04/18/22, E&S Combined Administrator #ESCA0396 - Exp 1/09/2023
Additional information: Ian D. Shaw, PE - Stormwater Management Program Administrator - SWPA0134 - 7/24/24; William Shepherd - E&S Control Inspector #ESIN1928 - Expires 04/27/2024		
<i>Provisional status is for individuals who have enrolled in courses with the intention of becoming certified. The appropriate certification exam must be taken and passed within 1 year of completing the required course(s).</i>		

BMP 4.1 Ensure City's Erosion and Sediment Control Compliance

Responsible Party: Adrian Gilbert, Development Review Coordinator, 540.853.5796

Objective

Ensure City regulations and Erosion and Sediment Control Programs are fully compliant with the VSMP regulations.

Existing Resources

[Erosion and Sediment Control Ordinance](#), Chapter 11.7

Implementation & Schedule

This BMP is continuously implemented. This BMP involves tracking regulated land disturbing activities.

Documentation and Effectiveness

Documentation of this goal will be annual records of all regulated land disturbing activities, total acreage disturbed, inspections, and enforcement actions taken of all applicable sites.

BMP 4.2 Erosion and Sediment Control Ordinance

Responsible Party: Adrian Gilbert, Development Review Coordinator, 540.853.5796

Objective

The City's Erosion and Sediment Control Ordinance establishes the MS4 program authority and requirements for managing stormwater quality at construction projects in compliance with the VPDES Permit.

Existing Resources

- [Erosion and Sediment Control Ordinance](#), Chapter 11.7

Implementation & Schedule

This BMP is continuously implemented. This BMP involves annual review and MS4 Program Compliance.

Documentation and Effectiveness

- Documentation of this goal will be continued online access of the most current ordinance version.
- Inspections and any enforcement actions taken will be logged into TRAKiT under parcels and with the plan information. Chronological items will be entered with actions and communication events.

BMP 4.3 VSMP General Construction Permit Coverage Compliance

Responsible Party: Adrian Gilbert, Development Review Coordinator, 540.853.5796

Objective

As specified in VSMP General Permit, there is a requirement of all construction site owners/operators to secure a VSMP Construction General Permit for all qualifying land disturbances.

A registration statement must be submitted to the department for review on all sites where grading is more than one acre under the Construction General Permit Coverage. Once approved, the City will enter the registration statement information into DEQ's SWCGP website. Construction cannot begin

until DEQ issues the Construction General Permit Notice of Coverage letter and a local Land Disturbance Permit is issued.

Existing Resources

- [Sec. 11.7-8. - Monitoring, reports, and inspections](#)
- [Stormwater Management Plan Review and Approval](#)
- [Notice of Violation](#)
- [Comprehensive Development Plan Review, FY19 Update](#)
- [Site Inspection Guidelines](#)
- [Enforcement Guidelines](#)

Implementation & Schedule

This BMP is continuously implemented.

Documentation and Effectiveness

No Land Disturbance Permit is issued for projects that have a disturbed area greater than one acre without the City having received and filed with the State, a copy of the Registration Statement, and having received a Construction General Permit (CGP) notice of coverage letter from the State. The City's portion of the CGP fee is collected with the Land Disturbance Permit Fee.

BMP 4.4 Erosion and Sediment Control Plans

Responsible Party: Adrian Gilbert, Development Review Coordinator, 540.853.5796

Objective

The goal of this objective is to reduce soil loss on construction sites and insure impacts to water quality are minimized.

Existing Resources

The City of Roanoke currently requires Erosion and Sediment Control Plans for any land disturbance equal to or greater than 2500 SF.

Implementation & Schedule

This BMP is continuously implemented as the Department of Planning, Building, and Development will ensure that E&S plans are prepared and compliant with all Federal, State, and local requirements.

Documentation and Effectiveness

Compliance is documented within the TRAKiT system.

BMP 4.5 Erosion and Sediment Control Compliance Training

Responsible Party: Adrian Gilbert, Development Review Coordinator, 540.853.5796

Objective

The goal of this objective is to ensure training is provided to all applicable employees and employees maintain certification.

Existing Resources

The City sends all applicable Planning, Building, and Development inspectors to E&S Control training.

Implementation & Schedule

This BMP is continuously implemented by the Department of Planning, Building, and Developments as needed to ensure new and existing employees maintain certification.

Documentation and Effectiveness

The City maintains a list of positions with responsibilities needing E&S Control training certification as well as a list of all trained/certified employees. Current certification documentation is found at the beginning of MCM#4 and is updated as needed.

Permit Reference Section II.B.5. Relevant Excerpts:

d. MS4 Program Plan requirements. The operator's MS4 Program Plan shall be updated in accordance with Table 1 in this section to include:

(1) A list of the applicable legal authorities such as ordinance, state and other permits, orders, specific contract language, and interjurisdictional agreements to ensure compliance with the minimum control measure in Section II related to post-construction stormwater management in new development and development on prior developed lands;

(2) Written policies and procedures utilized to ensure that stormwater management facilities are designed and installed in accordance with Section II B 5 b;

(3) Written inspection policies and procedures utilized in conducting inspections;

(4) Written procedures for inspection, compliance and enforcement to ensure maintenance is conducted on private stormwater facilities to ensure long-term operation in accordance with approved design;

(5) Written procedures for inspection and maintenance of operator-owned stormwater management facilities;

(6) The roles and responsibilities of each of the operator's departments, divisions, or subdivisions in implementing the minimum control measure in Section II related to post-construction stormwater management in new development and development on prior developed lands. If the operator utilizes another entity to implement portions of the MS4 Program Plan, a copy of the written agreement must be retained in the MS4 Program Plan. Roles and responsibilities shall be updated as necessary.

e. Stormwater management facility tracking and reporting requirements. The operator shall maintain an updated electronic database of all known operator-owned and privately-owned stormwater management facilities that discharge into the MS4. The database shall include the following:

(1) The stormwater management facility type;

(2) A general description of the facility's location, including the address or latitude and longitude;

(3) The acres treated by the facility, including total acres, as well as the breakdown of pervious and impervious acres;

(4) The date the facility was brought online (MMYYYY). If the date is not known, the operator shall use June 30, 2005, as the date brought online for all previously existing stormwater management facilities;

(5) The sixth order hydrologic unit code (HUG) in which the stormwater management facility is located;

(6) The name of any impaired water segments within each HUG listed in the 2010 § 305(b)/303(d) Water Quality Assessment Integrated Report to which the stormwater management facility discharges;

(7) Whether the stormwater management facility is operator-owned or privately-owned;

(8) Whether a maintenance agreement exists if the stormwater management facility is privately owned; and

(9) The date of the operator's most recent inspection of the stormwater management facility. In addition, the operator shall annually track and report the total number of inspections completed and, when applicable, the number of enforcement actions taken to ensure long-term maintenance.

The operator shall submit an electronic database or spreadsheet of all stormwater management facilities brought online during each reporting year with the appropriate annual report. Upon such time as the department provides the operators access to a statewide web-based reporting electronic database or spreadsheet, the operator shall utilize such database to complete the pertinent reporting requirements of this state permit.

MCM #5 Post Construction Stormwater Management

Responsible Party: Adrian Gilbert, Development Review Coordinator, 540.853.5796

Objective

For optimal water quality, stormwater management facilities must be properly designed, installed, and maintained to ensure peak function. The City reviews site development plans to ensure that water quality and water quantity designs meet standards set forth under the VSMP regulations, the Virginia BMP Clearinghouse, the VA Stormwater Management Handbook and the local Stormwater

Guidance Manual. Projects must use the VA Runoff Reduction Method Calculation Spreadsheet to demonstrate optimal BMP design for compliance. Stormwater facilities must be installed and certified under the direction of an engineering design professional. As-built plans must be submitted with the seal of the design professional.

Stormwater Management Program - Privately-Owned BMP Inspections		
VSMP Program Role	Name	Certification Type/Expiration or "Provisional"
Administrator	Adrian Gilbert, Development Review Coordinator	DUAL Combined Administrator - DCA0231 - 3/4/22
Inspector(s)	Robert E. Eakin	E&SC Inspector - 3810 - 11/30/22; SWM Inspector - SWIN0836 – 11/30/22
	Winston Corbett	DUAL Inspector - DIN0339 - 12/15/23
	Brooke Dean	DUAL Inspector - DIN0368 - 04/18/22, E&S Combined Administrator #ESCA0396 - Exp 1/09/2023
Plan Reviewer(s)	Kenneth E. Richardson, PE	Stormwater Management Plan Reviewer - SWPR0127 - 6/05/23
	Aaron Cypher	Dual Combined Administrator #DCA0293 - Expires 11/12/2023
Additional information: Ian D. Shaw, PE - Stormwater Management Program Administrator - SWPA0134 - 7/24/24		
Provisional status is for individuals who have enrolled in courses with the intention of becoming certified. The appropriate certification exam must be taken and passed within 1 year of completing the required course(s).		

Stormwater Management Program – Owner Operated BMP Inspections		
Program Role	Name	Certification Type/Expiration or "Provisional"
Inspector(s)	Joseph Judy	SWM Inspector – SWIN1453 - 9/24/21
	Michael Venable	Dual Inspector #DIN0906 - Expires 05/15/2024
	Indra Altangerel	DUAL Inspector - #DIN1485 - Expires 05/25/2024
	Cyndi Sledd	Dual Inspector #DIN1444 - Expires 03/10/2024
	William Shepherd	E&S Control Inspector #ESIN1928 - Expires 04/27/2024

BMP 5.1 Stormwater Management Design Manual

Responsible Party: Adrian Gilbert, Development Review Coordinator, 540.853.5796

Objective

The Manual includes detailed provisions for the design and construction of stormwater management facilities and is incorporated by reference in the Stormwater Management Ordinance. The manual serves 2 primary purposes. First, it provides a detailed description of the process and requirements for the submittal, review and approval of stormwater management plans as well as requirements for the long-term maintenance of stormwater management facilities. The manual includes plan review checklists and standard forms and language for the various agreements required by the ordinance. Secondly, it provides a compilation of design criteria and guidelines for common stormwater management facilities that are constructed or anticipated to be constructed in the city. These guidelines will be used by city staff to review and approve Stormwater Management Plans.

Existing Resources

[Stormwater Management Design Manual](#)

Implementation & Schedule

- Manual is available online for design professionals
- FY 2020-22 – Updates to manual including addition of Green Infrastructure/low-impact development.
- Future updates may include and require Building Code/Zoning modification:
 - Allow for innovation (Integrated WMP Table : Goal 1, D).
 - Allow for green streets right-of-way cross section (Integrated WMP Table: Goal 1, D).
 - Incentivize infiltration practices (Integrated WMP Table: Goal 1, A).
 - Require new outfalls to discharge just below the riparian buffer and add diffusers/step pools for erosion reduction (Integrated WMP Table: Goal 1, B).
 - Use stream simulation method when replacing aging culverts (Integrated WMP Table: Goal 2, A).
 - Revise construction requirements for stormdrain – sanitary sewer crossings to require encasing and minimum cover requirements (Integrated WMP Table: Goal 2, C).

Documentation and Effectiveness

Documentation of all inspections, as well as enforcement will be submitted with each Annual Report.

Related Resources

[Integrated WMP Table](#)

BMP 5.2 Stormwater Management Ordinance Maintenance

Responsible Party: Adrian Gilbert, Development Review Coordinator, 540.853.5796

Objective

The City's Stormwater Management Ordinance addresses stormwater quality and quantity in both development and post construction projects. This ordinance provides an enforcement mechanism against property owners and/or developers who do not maintain their installed Stormwater Best Management Practices.

Existing Resources

[Stormwater Management](#), Chapter 11.6

Implementation & Schedule

This BMP is continuously implemented by the Department of Planning, Building, and Developments needed to insure management of stormwater.

Documentation and Effectiveness

Documentation of this goal is the continued online access of the ordinance. The City reviews and evaluates the ordinance annually for compliance with the VPDES Permit requirements and program effectiveness which is included in the MS4 Annual Report.

BMP 5.3 Stormwater Facility BMP Inventory

Responsible Party: David Cooper, Stormwater GIS Specialist, 540.853.5912 (Public BMPs)

Adrian Gilbert, Development Review Coordinator, 540.853.5796 (Private BMPs)

Objective

Stormwater Facility Best Management Practices are tracked in an electronic database. This information gives the City a better understanding of BMPs installed in the city. Information tracked includes: Year Built; Type of BMP; Tax Map Location; Permit Number; Public vs. Privately Operated; Maintenance Agreement; Acres Treated, including impervious and pervious acres; HUC; Sub Basin; Date of Last Inspection and Impaired Receiving Waterbody.

Existing Resources

[BMP Certification Form](#)

Implementation & Schedule

- FY 2019 – Finalized plan to integrate data from Stormwater’s GIS database and Planning’s TRAKiT database which includes annual inspections for the Annual Report upload to the DEQ BMP Portal
- FY 2020 – BMP database and location map made publically available: [BMP Location Map](#) and [Table](#).

Documentation and Effectiveness

Documentation, as referenced in the objective above will be submitted with each Annual Report

BMP 5.4 Private BMP Maintenance Agreement and Inspection

Responsible Party: Adrian Gilbert, Development Review Coordinator, 540.853.5796

Objective

Legally executed and enforceable maintenance agreements ensure BMPs continue to function as intended to provide optimal onsite water quality results.

Existing Resources

[Forest Conservation Area Agreement](#)

[Stormwater Management / BMP Facilities Maintenance Agreement](#)

Implementation & Schedule

- Track and review that all BMPs have executed maintenance agreements and inspection schedules.
- FY 2019 - Published a Forest Conservation Area Agreement online which was developed in FY 2017.

Documentation and Effectiveness

Documentation of all inspections will be submitted with each Annual Report.

BMP 5.5 Public Stormwater Facility BMP Inspection and Maintenance

Responsible Party: Michael Venable, Field Operations Manager, 540.853.5911

Objective

Inspection and maintenance of all publicly-owned BMPs are the City's responsibility.

Existing Resources

- Stormwater uses [ArcGIS Online Survey](#) to integrate inspection data for each BMP.
- [Standard Operating Procedures for Public BMP Inspection and Maintenance.](#)

Implementation & Schedule

- Annually inspected each fiscal year.
 - FY 2018-23 – Stormwater staff intends to perform annual inspection of operator owned BMPs.
 - FY 2018-23 – Planning staff intends to perform annual inspection of privately owned BMPs.
 - FY 2019-22 – VueWorks should facilitate an automated work order system to implement repairs from inspection reports for operator owned BMPs.

Documentation and Effectiveness

The Engineer's Stormwater BMP Inspection report will serve as documentation for this BMP. Additionally as VueWorks is implemented summary repair reports can be provided as documentation when the system is ready and fully functioning.

Permit Reference Section I.E.6.

p. The MS4 program plan shall include:

- (1) The written procedures for the operations and maintenance activities as required by Part I E 6 a;*
- (2) A list of all high-priority facilities owned or operated by the permittee required in accordance with Part I E 6 c, and whether or not the facility has a high potential to discharge;*
- (3) A list of lands for which turf and landscape nutrient management plans are required in accordance with Part I E 6 i and j, including the following information: (a) The total acreage on which nutrients are applied; (b) The date of the most recently approved nutrient management plan for the property; and (c) The location in which the individual turf and landscape nutrient management plan is located.*
- (4) A summary of mechanisms the permittee uses to ensure contractors working on behalf of the permittees implement the necessary good housekeeping and pollution prevention procedures, and stormwater pollution plans as appropriate; and*
- (5) The written training plan as required in Part I E 6 m.*

MCM #6 Pollution Prevention/ Good Housekeeping for Municipal Operations

Responsible Party:

Christopher Blakeman, Environmental Manager, 540.853.1173

Leigh Anne Weitzenfeld, Water Quality Administrator, 540.853.5910

Mckenzie Bocker, Environmental Specialist, 540.853.5914

Objective

This section establishes written protocols to support and optimize best management practices for municipal operations.

BMP 6.1 Environmental Excellence Program

Objective

The City of Roanoke's Environmental Excellence or "E2" Program is an environmental operations and compliance assurance management system that is rooted in, yet not accredited as ISO 14001. With this program, we apply a systematic approach of continual improvement to reviewing and evaluating the environmental regulations, requirements and risks associated with our operations. That information is then used to develop, implement and refine operational controls to address them. The program is administered by the Environmental Management Division, while accountability for each of the controls is set as close as possible to the subject operations level. The program features components that identify nonconformities, their root causes and solutions, while also offering certificates, awards and recognition for employees whose conduct and performance reflects environmental excellence.

Existing Resources

- Environmental Excellence, E2 Significant Environmental Aspects Wallet Cards for PWSC staff
- Dashboard Decal – “If you see something, say something” – vehicle dashboard stickers for field staff
- Employee E2 Award Certificates and City Manager Letters

Implementation & Schedule

- Weekly and other interval operations inspections by field staff
- Monthly Facility and Operations Inspections by Environmental Management Division
- Semi-annual PWSC lot walks

Documentation and Effectiveness

Documentation includes inspections, checklists, training verifications, audits, issue and root cause corrective/preventive action plans, as well as, the process and resolution of identified problem areas.

BMP 6.2 Stormwater Pollution Prevention Plans for High Priority Facilities

Objective

The goal of SWPPPs is to identify high-priority facilities that have the potential to contaminate stormwater runoff and to outline written procedures and BMP to reduce or eliminate risk.

Existing Resources

- [SWPPP](#)-related SOPs

Implementation & Schedule

- FY 2019 –SOP revisions and updates added to the PWSC SWPPP.

Documentation and Effectiveness

Each department will keep a copy of the SWPPPs relevant to their daily operations. Documentation will include completed checklists and compliance evaluation completed by the Environmental Administrator.

BMP 6.3 Streetsweeping Program

Objective

The City maintains a regular street sweeping program as outlined in the Bacteria and Sediment TMDL Action Plan. The purpose is to remove sediment of various sizes, trash, debris, and organic-based materials to prevent their entrance into the storm drain system.

Existing Resources

- 5 regenerative air streetsweepers
- 4 mechanical streetsweepers
- 2 dump trucks
- 1 Dedicated streetsweeper mechanic
- GIS-based public sweeping schedule map

Implementation & Schedule

- Program is implemented on a continual basis.
- FY 2021 Actual tonnage may be connected to watersheds/neighborhood sections to optimize resource decision making; therefore optimizing the number of times certain sections are swept and reduce sweeping in sections where sediment is not as problematic.

Documentation and Effectiveness

TMDL Action Plans will include statistics for street sweeping and tons of debris/sediment removed.

Related Resources

[City of Roanoke Sediment and Bacteria TMDL Action Plan](#)

BMP 6.4 Inlet Cleaning

Objective

The goal of the inlet cleaning program is to lessen the effects of localized flooding and to remove floatables, debris, leaves, sediment, gravel and mud before it reaches the streams.

Existing Resources

- 2 Vactor Trucks
- 2 CCTV Inspection Trucks

Implementation & Schedule

- Program is implemented on a continual basis.
 - Cleaning plans to be completed, as needed, in conjunction with asset inventory.

- A high-priority list of problematic inlets is checked on a frequent basis.
- FY2020 CBD Streetsweeping Crews plan to use iPads to assist in documentation of inlet issues.

Documentation and Effectiveness

TMDL Actions Plans will include statistics for CCTV inspection and tons of debris/sediment removed and a high-priority maintenance list for target problematic inlets.

Related Resources

[City of Roanoke Sediment and Bacteria TMDL Action Plan](#)

BMP 6.5 Nutrient Management Planning

Objective

The goal is to reduce excess nutrients that may reach local streams.

Implementation & Schedule

- FY 2018-23 Nutrient Management Plans will be followed and revised as needed.
 - Existing City of Roanoke NMPs Valid: 11/1/19-11/1/22
 - Existing Roanoke City Public School's NMPs Valid: 5/3/21-5/3/24

Documentation and Effectiveness

- City of Roanoke NMP: Mountain View: 3.94 acres; Elmwood Park: 6.60 acres; and River's Edge: 3.0 acres
- Roanoke City Public Schools: William Fleming: 10.35 acres; James Madison MS: 1.9 acres; and Patrick Henry: 8.4 acres.

NMP reporting is directly to DCR and not included in the Annual Report.

NMPs are available to Parks and Recreation staff in digital and printed formats.

Related Resources

[Parks and Recreation Nutrient Management Plan](#)

[RCPS Nutrient Management Plan](#)

BMP 6.6 Employee Training - Stormwater, IDDE, SWPPP, Good Housekeeping, and PCBs

Objective

City staff engage in daily activities that have the potential to cause stormwater pollution, and they are our front line defense for recognizing and reporting illicit discharges and stormwater pollution if and when they view it. Various Types of training and repetition will continue to reinforce these trainings.

Existing Resources

- Biennial Stormwater Training which includes **Excal MS4 Illicit Discharge Detection and Elimination Training Video** and the **Excal Raincheck**.
- [Annual Written Training Plan](#)

Implementation & Schedule

This BMP is continuously implemented.

- FY 2019-20 Spill specific training added annually in conjunction with Division Safety Meetings and/or during SPCC Plan and UST Operator Training.
- FY 2019-23 Replenish dashboard decals/add to new vehicles during stormwater training every other year.

Documentation and Effectiveness

Training activities will be tracked and documented under MCM#6 in the Annual Report.

BMP 6.7 Roanoke City Public School (RCPS) Good Housekeeping BMPs

Objective

Roanoke City Public Schools (RCPS) RCPSs have instituted a set of BMPs to guide their school staff through good housekeeping practices. RCPS building maintenance staff conducts monthly inlet checks for their school facilities that have a stormdrain system. These BMPs also include checking dumpsters and other waste storage areas. Work orders are created if inlets are not found to be clear of debris and trash and other problems are found onsite. These BMPs and inspection sheets have been included in this report. In addition, all Roanoke City School parking lots are swept twice a year.

Existing Resources

- [RCPS Staff Training](#)
- [RCPS Organization Chart](#)

Implementation & Schedule

This BMP is continuously implemented.

Documentation and Effectiveness

Training activities will be tracked and documented under MCM#6 in the Annual Report.

BMP 6.8 Standard Operating Procedures for Daily Operations

Objective

The City of Roanoke maintains Standard Operating Procedures (SOPs) for all of the following practices. These SOPs are internal documents intended to give guidance to staff, and the City of Roanoke reserves the right to change SOPs at any time and in any manner. As such, the links below may not necessarily reflect the most current version of any given SOP. Anyone who would like to know more or obtain a current copy of any of the SOPs is invited to contact our Office of Environmental Management at 540-853-2425 or envmgmt@roanokeva.gov.

Existing Resources

Individual SOPs include:

- [Abandoned Waste SOP](#)
- [Aggregate Storage SOP](#)
- [AST Fuel and Fluid Transfer SOP](#)
- [Cross Contamination SOP](#)
- [Emergency Response Stations SOP](#)
- [Facilities Hazard Exposure Control SOP](#)
- [Handling Sharps and Blood Borne Pathogens SOP](#)
- [Haz Mat Management SOP](#)
- [Haz Mat Spill Response SOP](#)
- [Oil-Water Separator Maintenance SOP](#)
- [Ozone Depleting Substances SOP](#)
- [Parking Lot Insp & Sweep SOP](#)
- [Parking Lot, Roadway, & Bridge Maintenance](#)
- [Pesticide & Fertilizer Application SOP](#)
- [Pesticide & Fertilizer Storage SOP](#)
- [Power Washing SOP](#)
- [PWSC Best Management Practices SOP](#)
- [PWSC SAA Inspection Checklists](#)
- [PWSC Spill Response Station Checklists](#)
- [Regulated Waste Management SOP](#)
- [Salt Brine Storage SOP](#)
- [Salt Delivery and Storage SOP](#)
- [Solid Waste Collection Vehicle Washing SOP](#)
- [Solid Waste Ready Line Pollution Prevention SOP](#)
- [Storm Filter Inspection and Maintenance SOP](#)
- [Stormwater Drain Cleaning SOP](#)
- [Stormwater Illicit Discharge Detection and Elimination SOP](#)
- [Stormwater Outfall Surveillance SOP](#)
- [Stormwater Sediment SOP](#)
- [SWPPP Annual Comp. Compl. Eval SOP](#)
- [Used Battery Recycling SOP](#)
- [UST Bulk Fuel Delivery-Fleet SOP](#)
- [UST Bulk Fuel Delivery-Facilities SOP](#)
- [Vehicle and Equipment Fueling SOP](#)
- [Waste and E-Waste Disposal and Recycling SOP](#)
- [Waste Antifreeze Disposal SOP](#)
- [Waste Light Ballast Disposal SOP](#)
- [Waste Oil Disposal SOP](#)
- [Waste Paint Disposal SOP](#)
- [Waste Vehicle and OPE Batteries SOP](#)

Implementation & Schedule

- This program is implemented on an ongoing basis.

- FY 2019-21 Additional written procedures were completed for road and street maintenance and equipment maintenance.

Documentation and Effectiveness

Many of the SOPs have required documentation components such as inspections and checklists. These are completed and shared with Environmental Management, and copies are retained on file within each Division. The operations and regulations that apply to any given SOP are checked continually and the SOPs are then reviewed and updated as needed.

BMP 6.9 Maintain Stormwater Pollution Prevention, Control, and Countermeasures Program

Objective

A Spill Prevention Control and Countermeasures Program Plan (SPCC) is required for the City of Roanoke Public Works Service Center and for the Mountain Valley Transportation RCPS Bus Facility.

Existing Resources

- [City of Roanoke SPCC](#)
- [Mountain Valley Transportation RCPS SPCC](#)

Implementation & Schedule

This program is implemented on an ongoing basis.

- Maintenance of SPCC Plans take place as needed or required for applicable municipal facilities.
- Program education takes place as needed.
- Conduct weekly, monthly, and/or annual facility inspections and/or reviews as required.

Documentation and Effectiveness

Documentation of this activity will be annual records of related training or plan update sessions conducted including a record of employee attendance. Additional documentation will be of completed inspections and reviews.

BMP 7.0 Pet Waste Station Program

Objective

The City provides pet waste stations at hotspot locations primarily in parks, along greenways, and downtown. Pet waste stations are also prominent at both dog parks. The Mutt Mitt Station Program has grown to 108 stations. More stations will be added to publicly owned land as deemed necessary by City staff.

Implementation & Schedule

This program is implemented on an ongoing basis.

- Most locations are maintained 2-3x/week.
- Pet waste stations are restocked 3-4x/week

Documentation and Effectiveness

Documentation of this activity will be through monitoring the number of bags ordered. The hope is to see a trend of fewer dog piles in Highland and Thrasher Dog Parks, and less bags ordered, with the increase in Mutt Mitt station numbers and educational outreach.

BMP 7.1 Contractor Training

Objective

Contractors working for the City of Roanoke will receive instruction to implement good housekeeping and pollution prevention procedures to minimize pollutant discharges into the MS4.

Implementation & Schedule

This program is implemented on an ongoing basis.

- FY-20-23 Good housekeeping and pollution prevention procedure language is being incorporated into the City's contract under Special Terms and Conditions for any projects that are outside and are subject to weather elements.
 - ARTICLE 36. MS4 PERMIT LANGUAGE.
 - A. Contractors engaging in activities with the potential to discharge pollutants shall use appropriate control measures that filter and contain, thus stopping the discharge of pollutants into the MS4 to the maximum extent practicable (MEP), to protect local water quality, and to satisfy the appropriate water quality requirements of the City's MS4 Permit. The MS4 includes all portions of the City's

stormwater conveyance system: gutters, ditches, swales, and natural channels, as well as stormdrain inlets and stormdrain pipe.

- B. Contractors who apply pesticides and fertilizer shall be trained and certified in accordance with the Virginia Pesticide Control Act (§ 3.2-3900 et seq. of the Code of Virginia). Certification by the Virginia Department of Agriculture and Consumer Services (VDACS) Pesticide and Fertilizer Applicator program shall constitute compliance with this requirement. Contractor shall also comply with the City of Roanoke, Public Works Service Center, Standard Operating Procedure on Pesticide and Fertilizer Application, last revised March 13, 2019.

Documentation and Effectiveness

- Contractors, hired by the City, will submit Virginia Pesticide and Herbicide Applicator Certification.
- Starting in FY-22 a summary list of relevant executed contracts can be provided in the MS4 Annual Report.

BMP 7.2 Cigarette Butt Receptacles

Objective

The City installed 20 cigarette butt receptacles stations at hotspot locations primarily in the downtown business district. Receptacles are maintained regularly by Stormwater staff. More stations will be added or relocated as needed based on observations from maintenance staff.

Implementation & Schedule

This program is implemented on an ongoing basis.

- Locations are maintained 1x/week or as needed depending on frequency of use at location.
- Receptacles relocated/ added as necessary due to volume of cigarette butts.

Documentation and Effectiveness

Documentation of this activity will be through monitoring of downtown areas and receptacles by stormwater staff. They regularly monitor hotspot areas for cigarette butts on the ground and collect butts from receptacles. As outreach increases, a decrease in cleaning needed hotspot areas for cigarette butts as well as an increase in cigarette butts collected in receptacles is the goal.